Hall Ticket Number:

Code No. : 14109 EHI

VASAVI COLLEGE OF ENGINEERING *(Autonomous)*, HYDERABAD

B.E. (CBCS) IV-Semester Main Examinations, May-2018

Electric Heating and Illumination

(Open Elective-III)

Time: **3** hours Max. Marks: **70**

*Note: Answer **ALL** questions in **Part-A** and any **FIVE** from **Part-B***

Part-A (10 × 2 = 20 Marks)

1. Write the classification of heating methods.
2. There are 'n' number of heating elements with resistance 'R' ohms connected in parallel in a furnace. Calculate the amount of heat generated if the supply voltage is 'V' volts.
3. What is the advantage of submerged arc welding?
4. What type of welding is used for welding chains, rail ends and shaft axles?
5. Define lux.
6. Compare plane angle and solid angle.
7. What are the applications of outdoor lighting system? Explain any one of them.
8. Give the classification of light fittings.
9. Which type of heating method is used for heating bones and tissues?
10. What is the function of starter in a fluorescent lamp?

Part-B (5 × 10 = 50 Marks)

11. a) What are the various methods of controlling temperature of resistance furnace? [6]

    b) In case of hardening of a steel pulley, the depth of penetration required is 1.4mm. The relative permeability is unity and the specific resistivity of steel is $5x10^{-7}$ ohm–m. Determine the frequency required. [4]

12. a) Formulate the expression for the heat developed during Resistance welding from fundamentals. [6]

    b) Draw and explain the Inert gas metal arc welding characteristics. [4]

13. a) Draw and explain about Polar curves. What are its uses? [6]

    b) Write the laws of illumination with neat diagrams. [4]

14. a) What are the problems of street lighting and what type of lighting is used for it? [4]

    b) Draw and explain the operation of fluorescent lamps. [6]

15. a) Compare direct and indirect resistance heating methods. [6]

    b) Explain the process of Electric Welding with a neat diagram. [4]

16. a) On what factors does degree of illumination depends on? [5]

    b) Define Reflection factor and Coefficient of utilization. Write their significance. [5]

17. Answer any ***two*** of the following:

    a) Explain the difference between direct and indirect heating methods. [5]

    b) Explain the principle of operation of filament lamp and its applications. [5]

    c) What are the advantages of coated electrodes? [5]